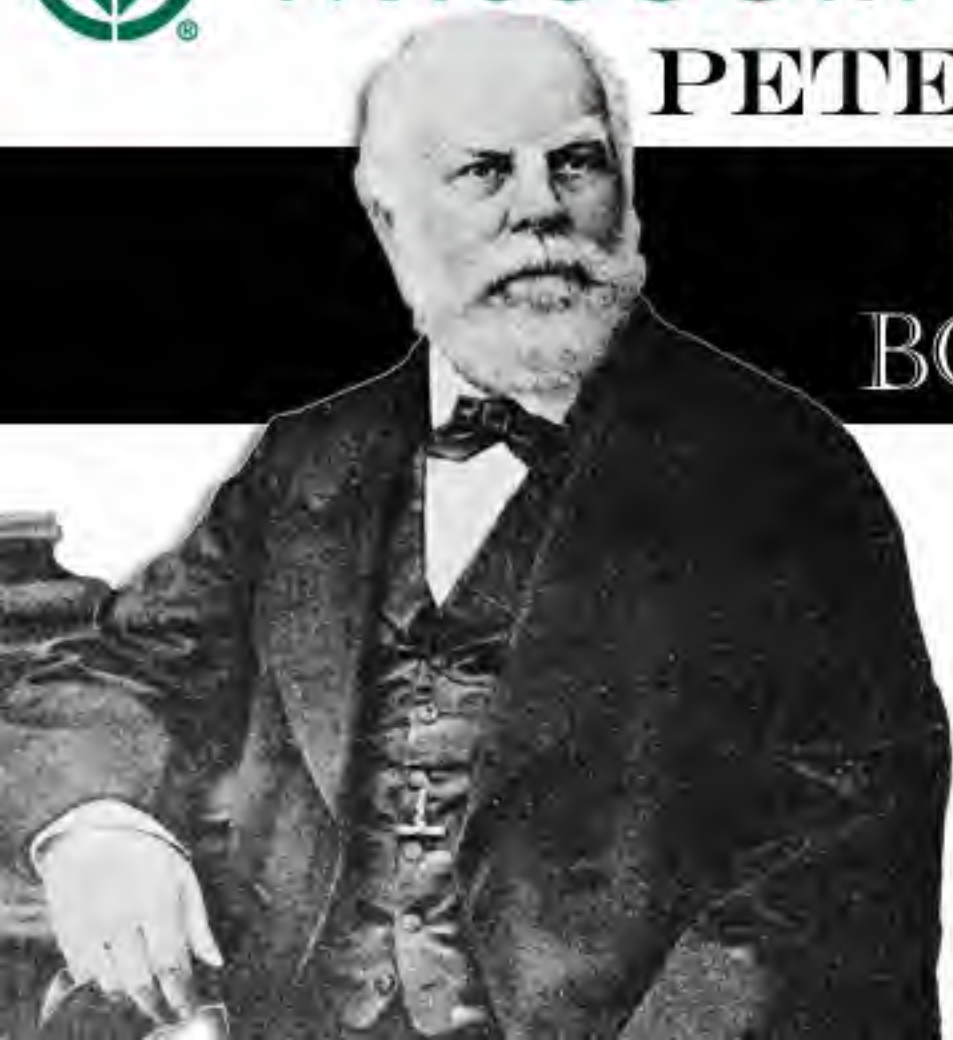


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BOTANICAL NOTEBOOKS



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J. paradoxus & longicaudatus

*sem oblongis, saepe brevissimis
transverse striatis*

663-673

118

TRANS. OF THE ACAD. OF SCIENCE.

interrupted descent and ascent took place from January to December, we find in 1862 some interruptions in the steps of that ladder. The electricity in February, 1862, is about four degrees higher than that of January, April somewhat higher than March, and July is the lowest instead of September in 1861. These trifling irregularities may be accounted for by differences in temperature and relative humidity, and by a greater number of thunderstorms in 1862. January of 1862, for instance, was so unusually rainy, that its relative humidity too was unusually high, diminishing thus electricity. But the general features of distribution of electricity throughout the year are apparent in both years, and we may in that respect divide the twelve months of each year into two or three groups. Computing the months which give the highest electricity and those which give the lowest in each year, we find that in both years the months of January, February, March, April, November and December exhibit the highest, and the months of May, June, July, August, September and October the lowest electricity. The first group gives

The aggregate monthly mean of 71.5 degrees of electricity in 1861	
and 74.6	" " 1862
While the second group gives 29.0	" " 1861
and 25.7	" " 1862

The second group prevailed therefore in 1861, and the 1st in 1862



0 1 2 3 4 5 6 7 8 9 10
cm

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VI. The appearance of negative electricity was connected in

1861. No. times.	1862. No. times.	
30	32	with thunderstorms.
23	28	with rains without thunder and lightning.
20	4	with dry storms (without rain and without thunder and lightning).
4	3	with snow.
1	0	with fog.
78	67	

VII. Relation of Rain and Snow to Electricity.

Rain without thunderstorm was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January.....	7	5	3	2	2
February.....	2	1	4	1
March.....	5	6	4
	8	6	7	7	1

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Imms Candace
S. Tabernatensis

Connecticut New Jersey DC S. Carol
 X Georgia

114

TRANS. OF THE ACAD. OF SCIENCE.

674-85

Topaz in Utah. By HENRY ENGELMANN.

During my explorations in Utah as Geologist of the Expedition under Capt. J. H. Simpson, Top. Eng'rs. U. S. A., in 1858 and 1859, I observed some remarkably beautiful crystals of Topaz among some detritus of trachytic porphyry. They were perfectly colorless, transparent, sharply developed, and of great lustre. They were all short columnar. The largest of them measured scarcely one third of an inch in the direction of the basal cleavage, which was highly perfect. I observed ten modifications: all crystals exhibited (according to Prof. Rose's designation)

$\infty c : b : a$, $\infty c : b : 2a$, $c : \infty b : : \infty a 1$,
 $4 c : b : \infty a$, $2 c : b : a$;
 most of them also $2 c : b : \infty a$, $c : b : a$;
 a few only $2 c : \infty b : a$, and $4(?) c : b : a$.

As in none of the crystals were both ends developed, I could not ascertain whether they were hemihedral, as is most common with topaz. The hardness of the mineral is = 8. It is infusible before the blowpipe; and when strongly heated is coated with small blisters, but does not show any change of color. It exhibits the reactions of fluorine, alumina, and silex. No tests were made for other elements, nor were the crystals examined in regard to pyro-electricity and polarization.

S. tami - sepulchris
extremis
brevis

Feb 9 66

panicle diffusa
capitula pluriflora
sepala 5-nervia
capsula armata s. vix
semin oblonga breviter caudata



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ELÆACRINUS KIRKWOODENSIS, n. sp.

Body very small, subglobose, a little longer than wide, flattened above and below. Basal pieces very gently concave, with their edges on a level with the plane of the under side. Radial pieces (fork pieces) reaching to the base and occupying more than four fifths the entire length of the body, narrow below and widest in the middle, sides gently arched. Interradial pieces subdeltoid, very prominent towards the apex, much longer than wide, obtusely angulated below, acutely angulated above, and notched on either side a short distance below the summit. Pseudo-ambulacral areas extending from base to summit, narrow, deeply impressed; sides nearly parallel; pore pieces amounting to about fifty in each field. A longitudinal fissure or slit extends from the central summit opening downwards, separating the pore pieces of one side from their fellows of the opposite for the distance of about one fifth the length of the field, thence their inner edges are united in the median line to the base. Pseudo-ambulacral spaces lanceolate, sloping gently from their edges to the sutures. Ovarial apertures eight, very minute, situated at the notches of the interradial plates. Anal opening large, circular or very slightly elliptical. The surface markings are not plainly exhibited in any of the specimens.

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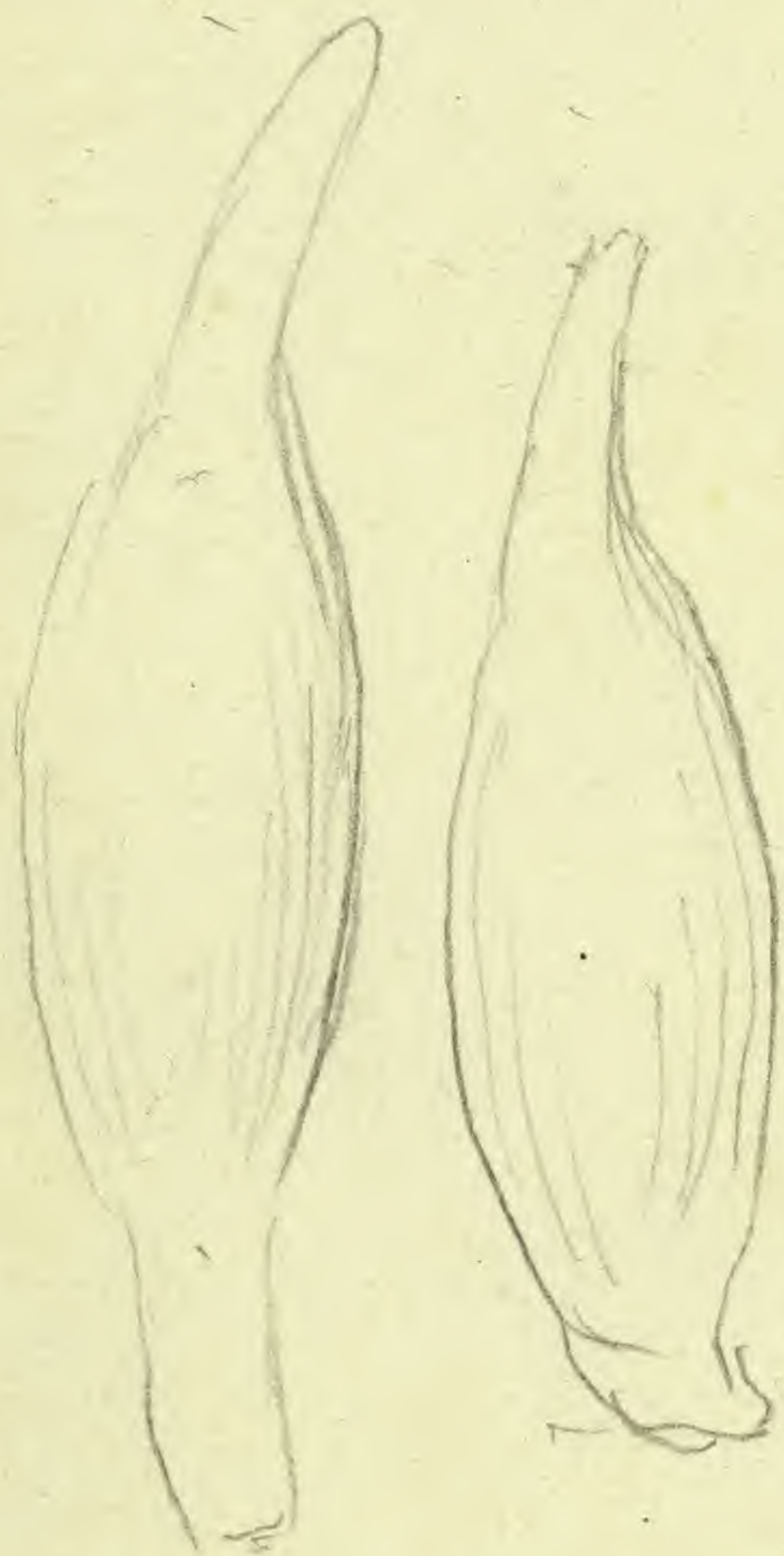
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Junonia paradoxus

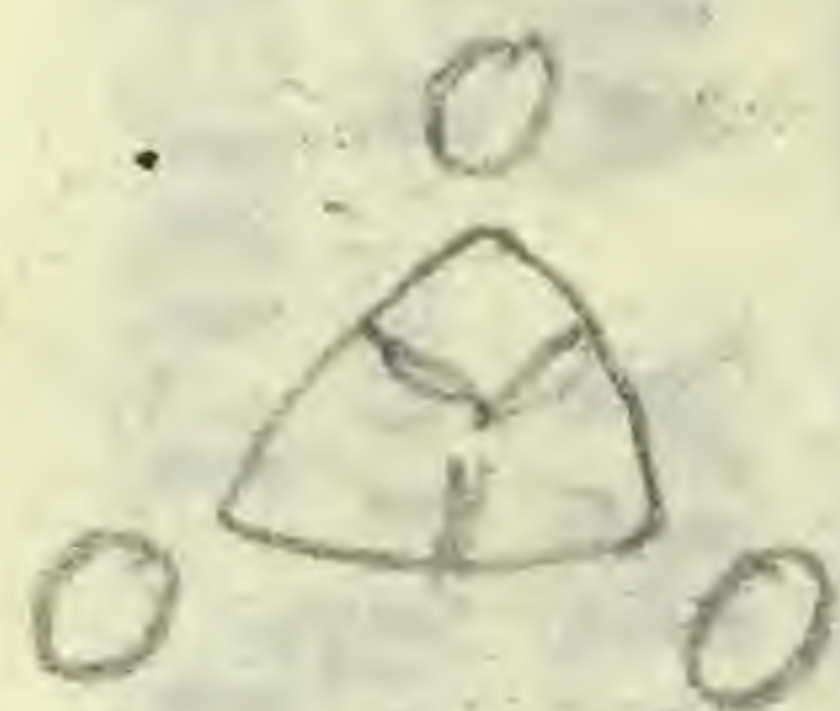
Aug 29 1865

Athens, Ill. E. Hall (Same, Ringwood, Vt.)

X60



X10



Seeds from same
capsule



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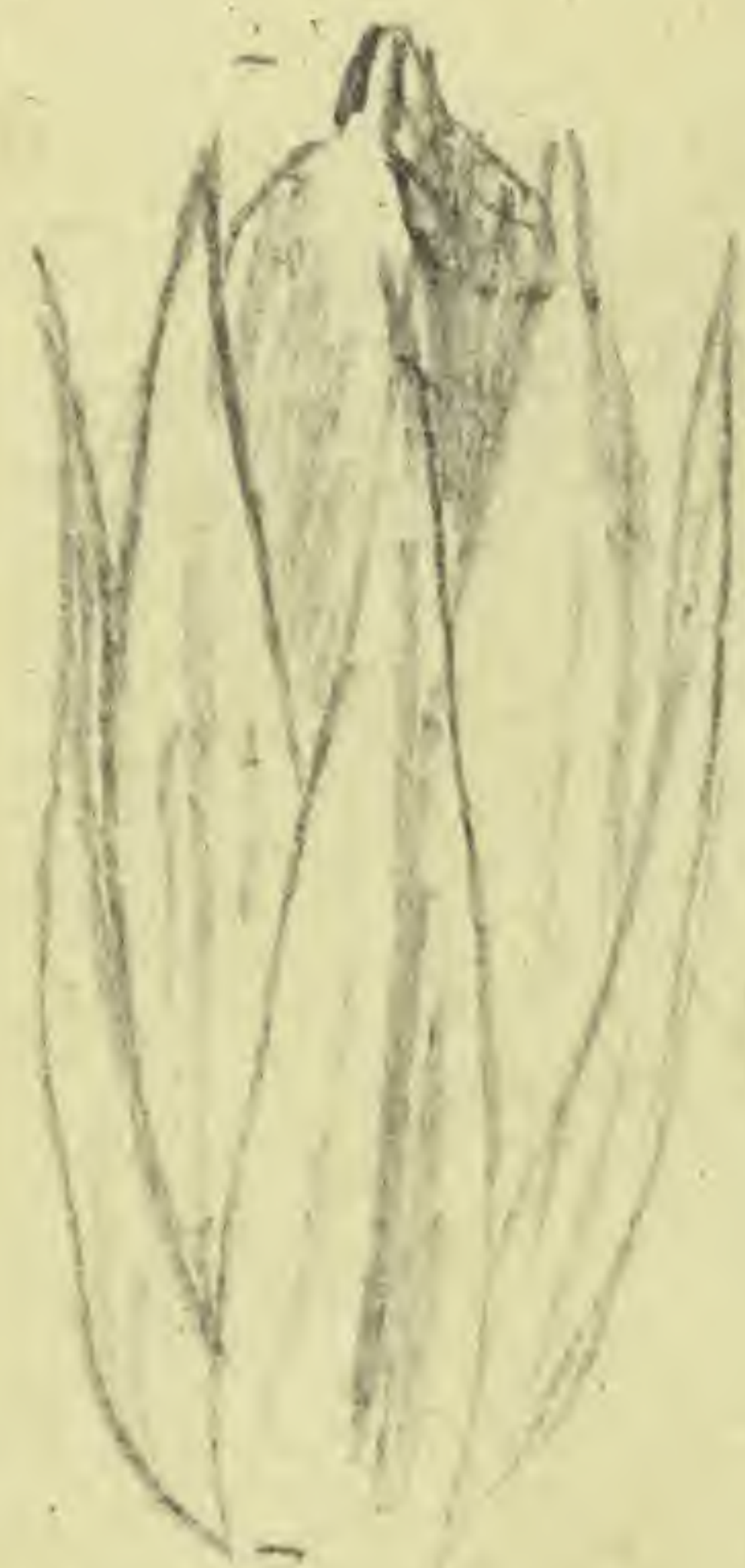
S. paradoxus

Dec 9 1865

sub nom. *S. subventricillatus* Muhl

New Jersey, - Hb. Ac. Phil.

x60



flowers from the same
plant -



cross striation
x150 indistinct

sepal ext. breviter nerviculato-
carinato 3 nervis
interior longiora plana
3 nervis



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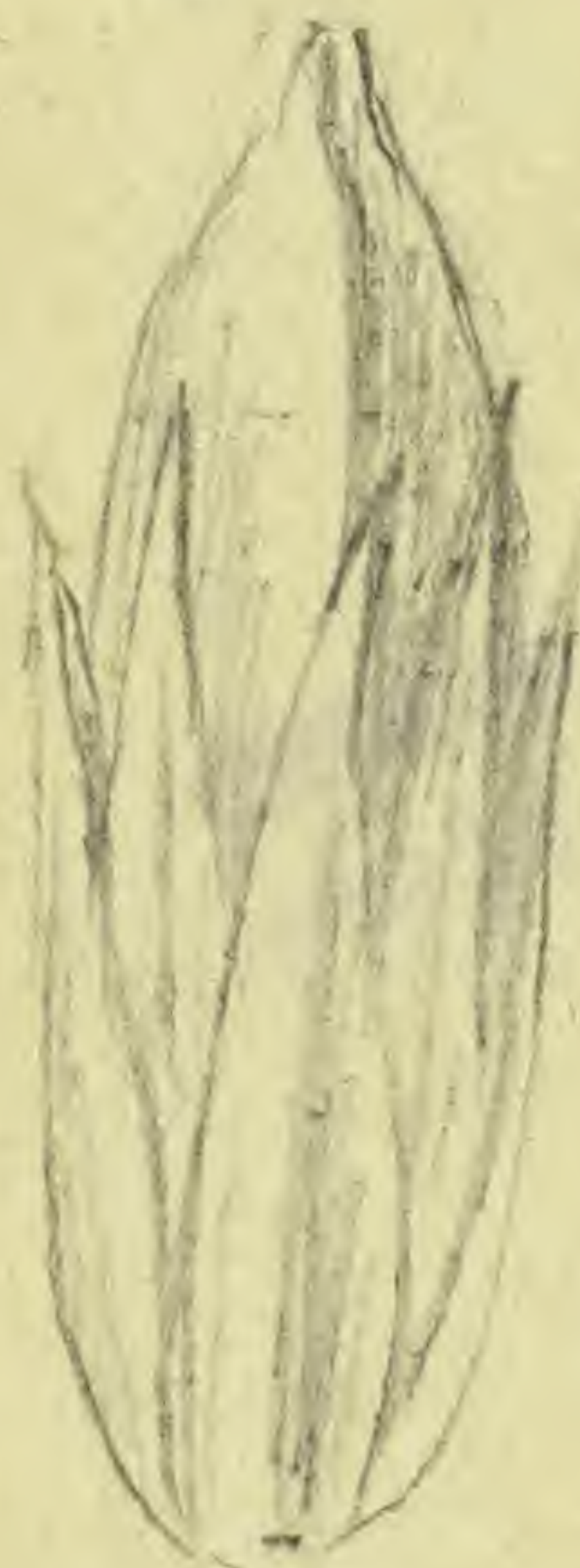
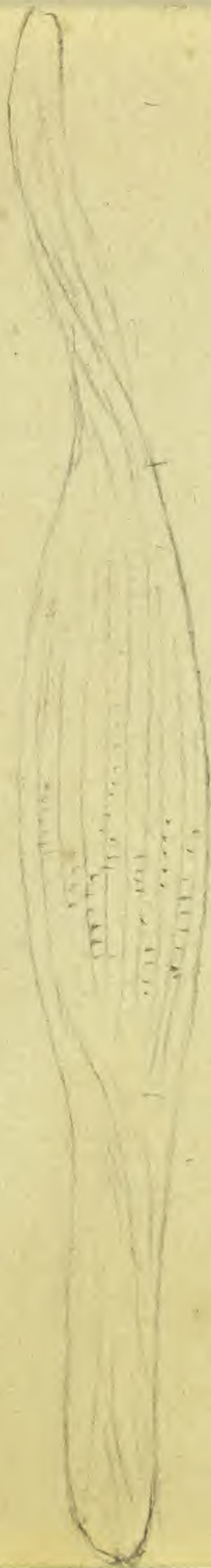
I. paradoxus

Philad.

Hb. Lindl.

Dec 10 1865

(mark A)



X150



seeds equally broad
outer narrow
inner 3 ribbed



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J. pandanus

Philad.

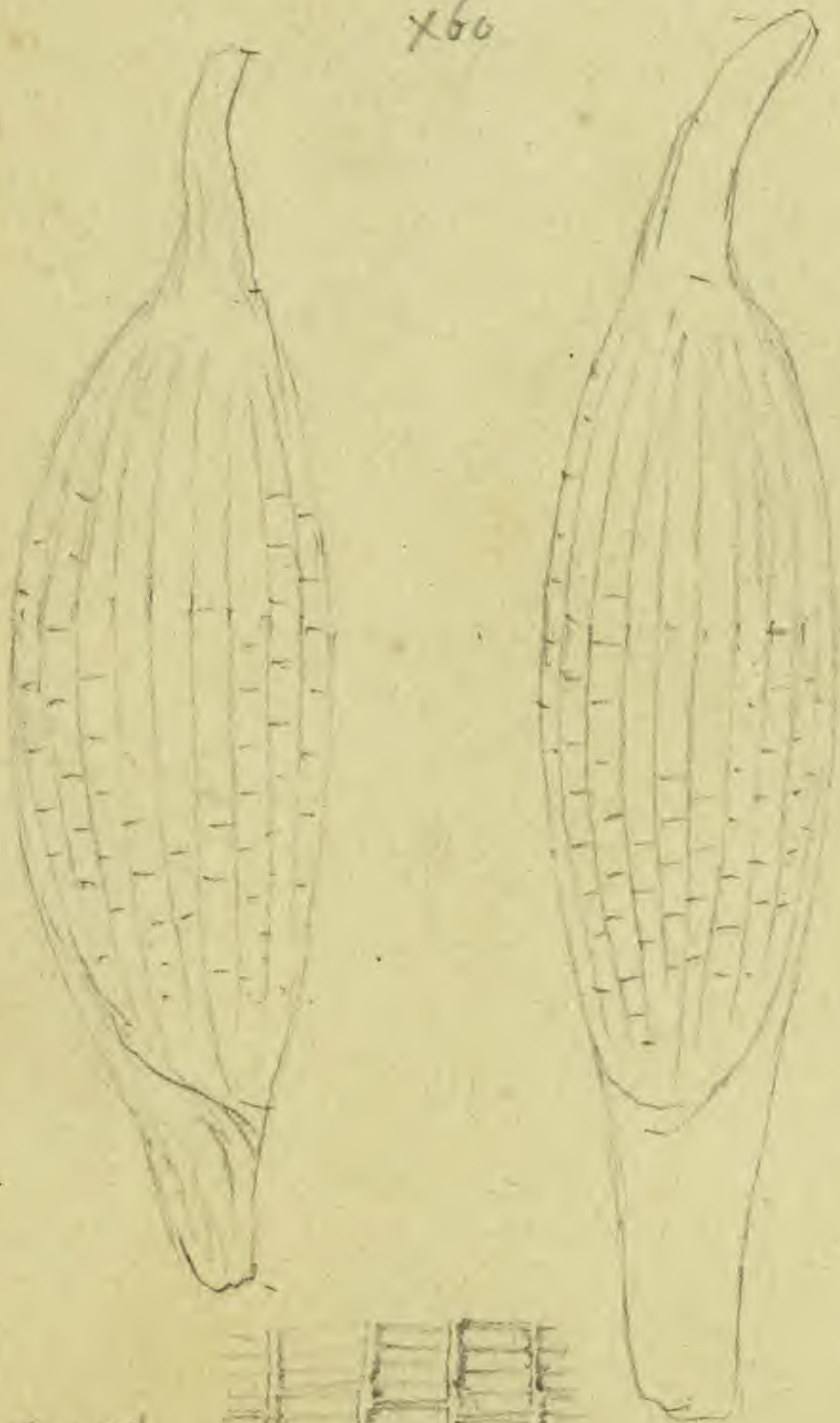
Hb. Leidy

Dec 10 1865

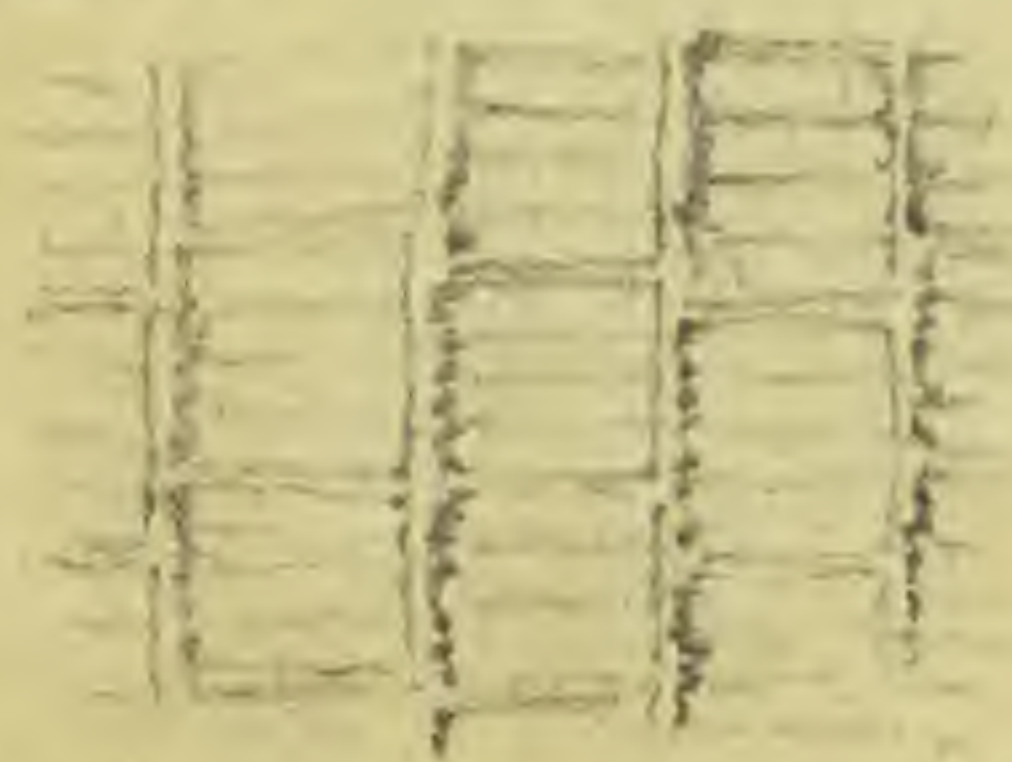
seed of same capsule

marked "pandanus tree"

x60



x150



ext sepals narrow-lanceolate, only in the dry state
int sepals flat, 3 nerved

somewhat
3 nerved



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h16b



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Dec 16 1865

Juncus

sub nom *J. nodosus*

ex Hb. Durand

= Hb. Engelm



fructiform
calyx

sepal exten intern

3 or sub 5 ~~sepal~~ 3 nervs



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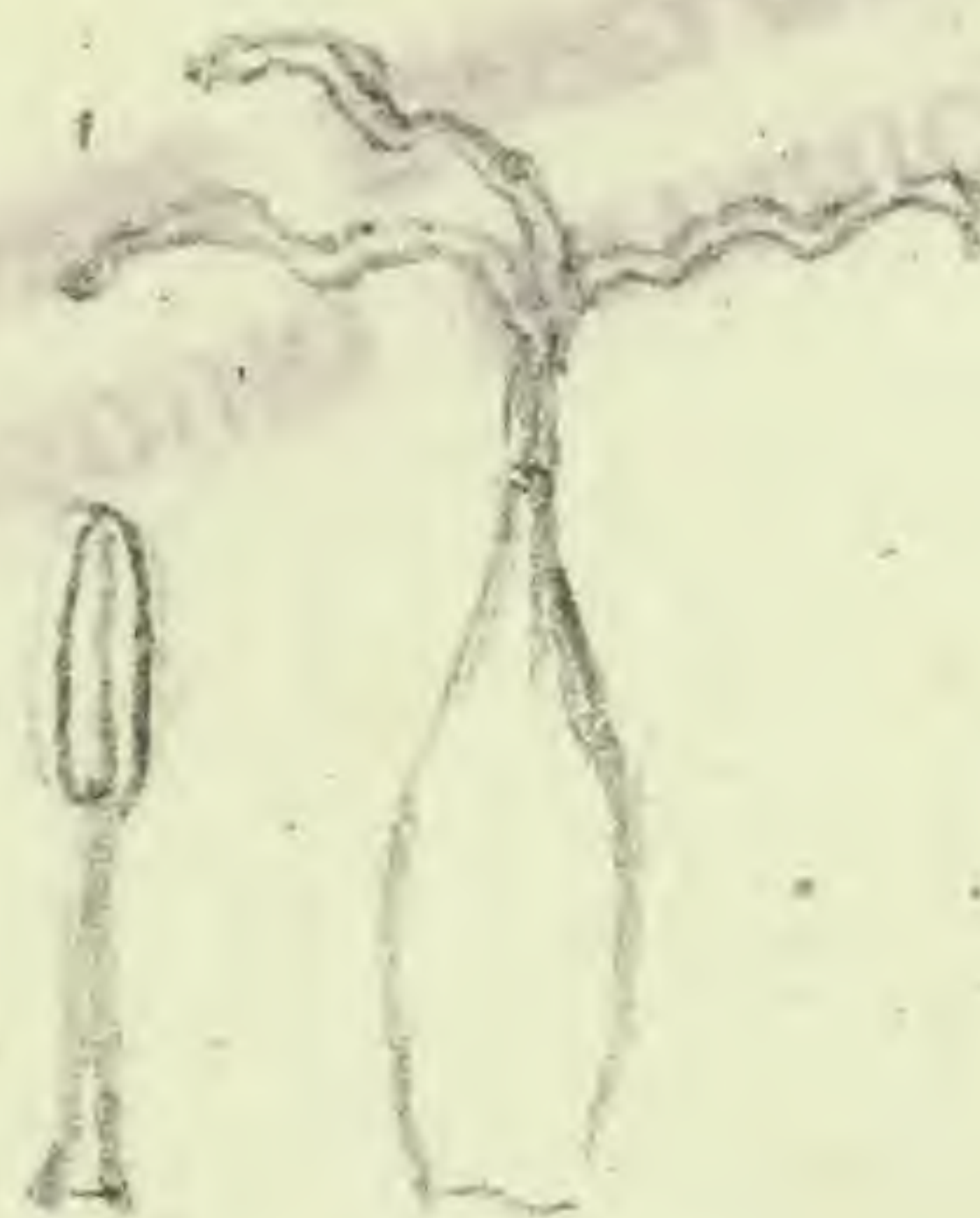
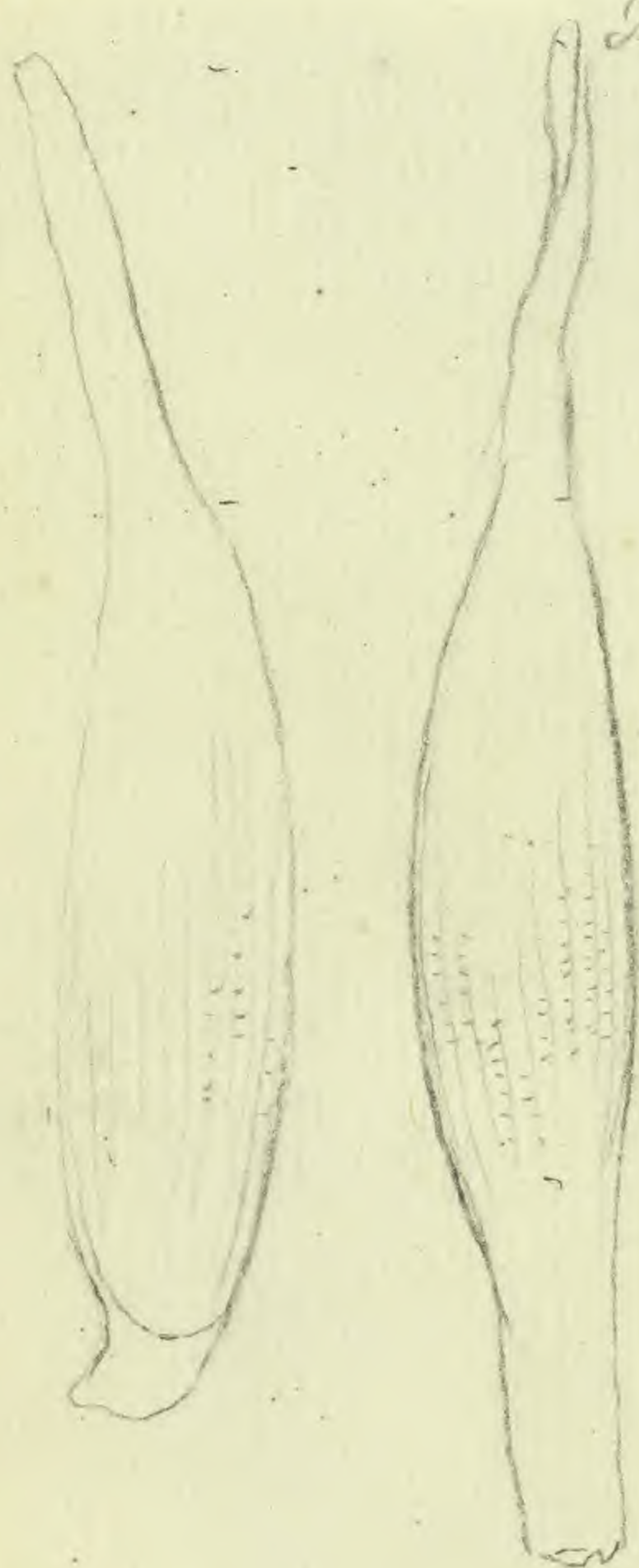
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I. pandanus

March 4 1866

Tinicum Delaware Co Pa, Oct 1864

Ch^s E Smith



all sepals 3 ribbed



seen once



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cm

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" *L. parsonsii* "

March 4 1866

" pods remarkably, blunt "

Bear Meadows Center Co Pa

T. C. Porter

Aug 19 '64

- Hb C. E. Smith



very young seed



sepals nearly equal
all 3 ribbed



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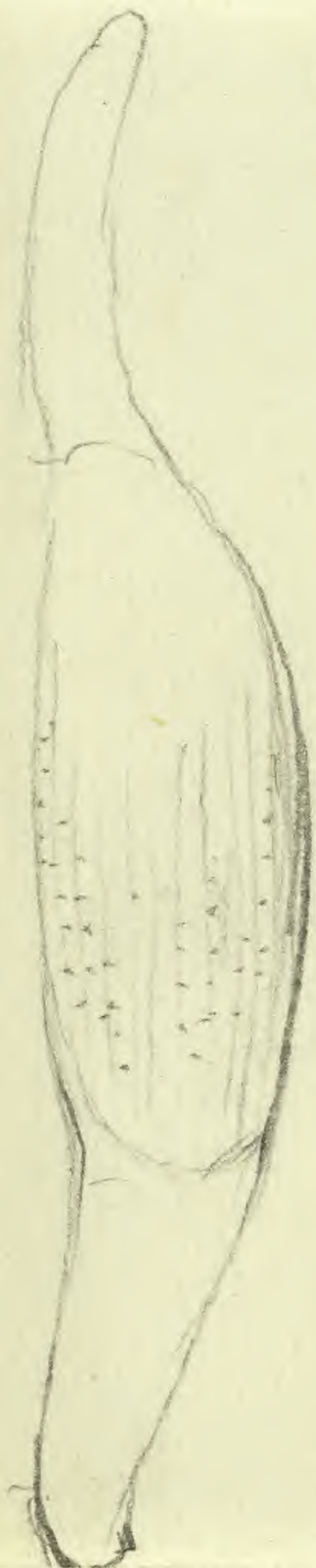
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D. paradoxus Gray N. 3 April 16 1866

Salisbury, Maryland, A. C. Conner
spirothorus Sept 1863



compositae
anthode umbellata nulli.

moderate

capitula e spicis infra
sterilibus pluribus compositis
sepius prolifera



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Zinnia paradoxa Gray N. 1

April 16 1866

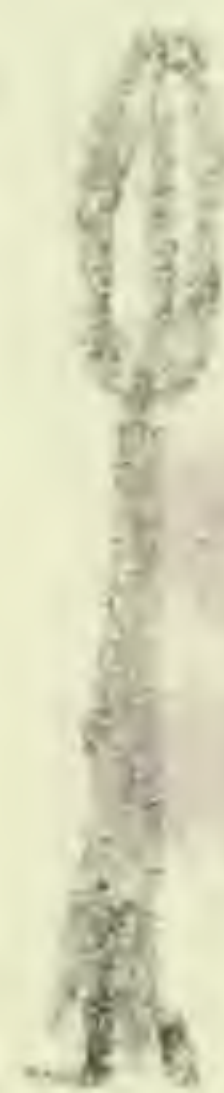
Summit bridge, Delaware,

A. Commens

Aug. 1865

heads 16-20 flowers
in large decumbent
loose panicle

A specimen from New Castle Co Del
(marked 2) has a compact panicle
heads 30-60-90 flowers, seeds
exactly the same



A



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I. pendula seen majouly, crassidontus
stratis, transverse stralctis
at Bractycaudum Transcunctes

Illinois, Hall

Connecticut, Eaton

Philadelph

Leidy

& New Jersey

Burnett

Louisiana

Hale



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S. subcordatus

flower 3.2 - 3.4 3.6 3.6 3.5 3.8 3.0 3.8 2.8
1/2 - 2 li 3.3 mean 3.4 mm long.

seed	$\frac{38 \times 15 - 50}{60}$	$\frac{37 \times 15 - 57}{60}$	$38 \times 17 - 60$
	$35 \times 15 - 46$	$43 \times 16 - 66$	$43 \times 16 - 76$
	$35 \times 16 - 45$	$35 \times 16 - 47$	$50 \times 17 - 64$
	$32 \times 16 - 40$	$30 \times 15 - 45$	$32 \times 14 - 56$
	$42 \times 15 - 50$	$40 \times 14 - 56$	$42 \times 15 - 70$
	$40 \times 16 - 62$	$40 \times 14 - 50$	$38 \times 17 - 58$

lin 0.25 - 0.36 length of seed	$\frac{30 - 43}{60}$ mm	mean $\frac{36}{60}$ mm
0.12 - 0.13 diam	$\frac{14 - 17}{60}$ mm	$\frac{15}{60}$
0.33 - 0.63 length with app	$\frac{40 - 76}{60}$ mm	$\frac{52}{60}$



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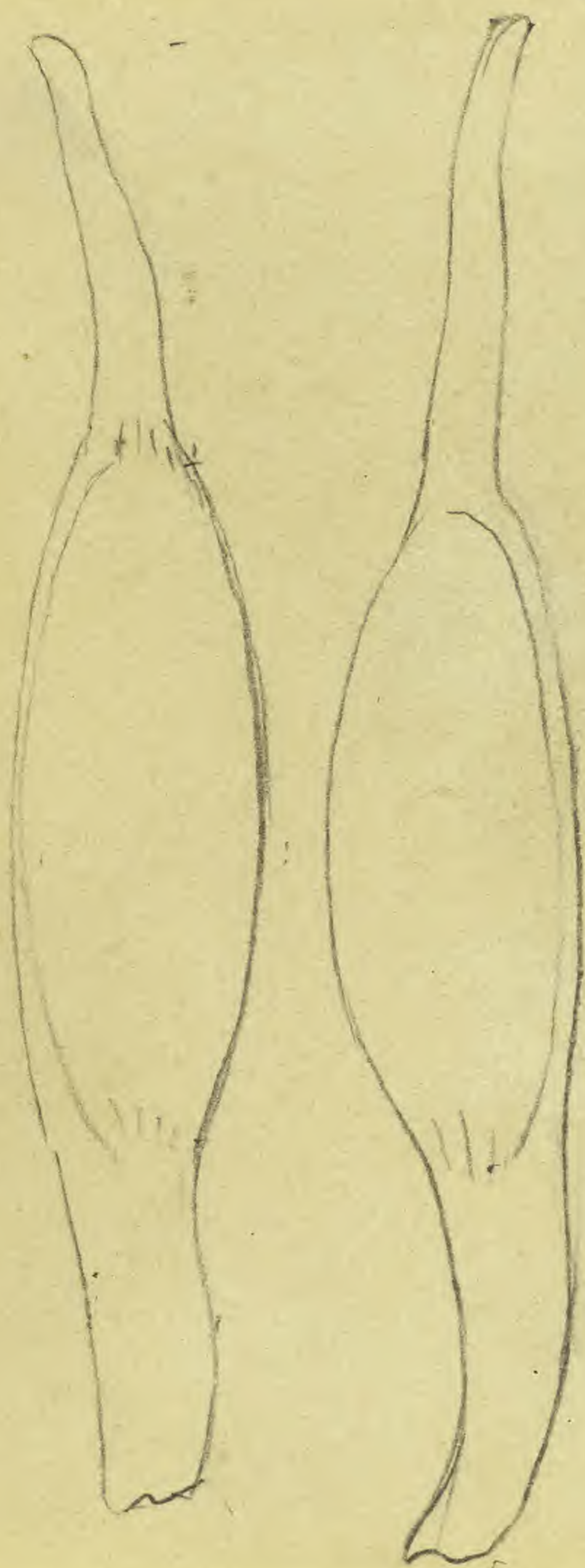
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"*Tanais polycephalus*" Feb 19 1866
 Louisiana Dr J. Hale
 - Hb Gray



sepala vix acuta
 exteriora vix ad basin 3 nervia
 interiora distincte 3 nervia



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"*Juncus nodosus*"

Aug 31 1865

New Haven Ct D.C. Eaton 1859 J.H. Hall

various? almost? but seed different of both.



shape of seed



x 150



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"*J. scopoides*"

Sept 29 1865

N. 13 DC Eaton H. Hav. Cl. 1858

— Hb Gray



Febr 19 1866

capitula multiflora

— penicillata compacta
coarctata

The plant marked
"*J. paradoxus*"

H. Hav. Cl. 1859

Eaton — Hb Gray

is the same

with short bracts

large seeds

and short

capsules, not longer
than imm. sepals

seed unripe



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J. Canadensis p. *longicaulis*
macrocarpa.

Length of flower 4.0 - 3.0 - 3.5 - 2.0 - 3.2 - 3.0 - 3.2
2.0 2.2 2.5 2.6 mm. $\frac{1}{2}$ - 2 Lin

Seed	Length dia. total length		of kernel
	length	dia	
	45 x 18 - 96	43 x 15 - 90	48 x 14 - 75
	43 x 16 - 102	45 x 16 - 98	35 x 15 - 55
	35 x 15 - 78	45 x 14 - 105	56 x 15 - 95
	50 x 14 - 100	53 x 17 - 115	43 x 12 - 83
	47 x 14 - 85	50 x 15 - 94	

Length	$\frac{35}{60} - \frac{58}{60}$	=	0.30 - 0.46 lin
Diam	$\frac{14}{60} - \frac{18}{60}$		0.12 - 0.15 ~
total length	$\frac{75}{60} - \frac{110}{60}$		0.60 - 1.00 ~



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Demons ~~Crossed~~ ^{Can} ^{is} ^{D. S. S. S. S.} ^{Outing}

	Philad	Gray	Logdun
Washington		Rebb	Rebb
New Jersey & Phil	Leidy Jr		Leidy Jr
Georgia			Reynick
S Carolina	Mottall		(Mottall)
New Haven Ct.			Eaton
Lancaster Pa	Porter		& H. H. Hall
			(Porter)



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